Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A quadrature modulator, comprising:

a) an in-phase modulation branch receiving as an input an analog in-phase base band signal, the in-phase modulation branch including a first dc offset adjustment circuit, a first base band gain adjustment circuit, and a first mixer;

b) a quadrature modulation branch receiving as an input an analog quadrature based band signal, the quadrature modulation branch including a second dc offset adjustment circuit, a second base band gain adjustment circuit, and a second mixer;

c) a local oscillator means for providing a local oscillator signal to the first mixer and a phase shifted version of the local oscillator signal to the second mixer;

d) a summer for summing the outputs of the first and second mixers;

e) an envelope detector for detecting an output signal of the modulator and providing a signal representative of the amplitude of the output signal <u>of the quadrature modulator</u>;

f) a band pass filter for filtering the amplitude signal; and

g) a signal strength indicator circuit for measuring the strength of the filtered amplitude signal, the indicator circuit providing a compensation signal for adjusting the phase shift of the local oscillator and the dc offsets and base band gains of the in-phase and quadrature base band signals.

2. (Previously Presented) The modulator according to claim 1, wherein the envelope detector comprises a synchronous detector and the signal strength indicator comprises a log indicator.

3. (Currently Amended) The modulator according to claim 2, including a programmable attenuator for adjusting the level of the output signal of the quadrature modulator, and wherein the envelope detector measures the output signal following attenuation.

4. (Previously Presented) The modulator according to claim 1, including a tone generator for supplying a test tone signal to the in-phase modulation branch input and a ninety degree phase-shifted version of the test tone signal to the quadrature modulation branch input.

5. (Previously Presented) The modulator according to claim 4, further comprising means for:

a) applying a first test tone signal to the in-phase modulation branch input and a ninety degree phase-shifted version of the first test tone signal to the quadrature modulation branch input;

b) employing the compensation signal to minimize carrier leakage in the output signal by adjusting the base band dc offsets in the in-phase and quadrature branches;

c) applying a second test tone signal to the in-phase modulation branch input and a ninety degree phase-shifted version of the second test tone signal to the quadrature modulation branch input, wherein the second test tone has a frequency that is substantially one half of the frequency of the first test tone; and

d) employing the compensation signal to minimize an undesired upper sideband frequency component in the output signal by adjusting the base band gains the in-phase and quadrature modulation branches and the phase shift of the local oscillator signal.

6. (Currently Amended) A method of calibrating a quadrature modulator, comprising:

a) applying a first test tone signal to an in-phase modulation branch input of the modulator and a ninety degree phase-shifted version of the first test tone signal to a quadrature modulation branch input of the modulator;

b) measuring the level of a local oscillator (LO) ~~feedthrough~~ feed through in an output signal of the modulator and in response adjusting base band dc offset voltages to minimize the LO ~~feedthrough~~ feed through;

c) applying a second test tone signal to the in-phase modulation branch input of the quadrature modulator and a ninety degree phase-shifted version of the second test tone signal to the quadrature modulation branch input; and

d) measuring the level of an undesired upper sideband frequency component in the output signal and in response adjusting base band gains the in-phase and quadrature modulation branches and a LO phase error to minimize the undesired sideband.

7. (Previously Presented) The method according to claim 6, wherein the second test tone has a frequency that is substantially one half of the frequency of the first test tone.

8. (Currently Amended) The method according to claim 6, wherein measuring the level of the local oscillator (LO) ~~feedthrough~~ feed through or the USB in the output signal is carried out by:

a) shifting the frequency spectrum of the output signal such that a lower sideband frequency component (LSB) ~~Is~~ is down-converted to zero IF;

b) filtering the spectrum-shifted signal to pass through either the LO ~~feedthrough~~ feed through or the USB; and

c) measuring the amplitude of the filtered, spectrum-shifted signal.

9. (Previously Presented) The method according to claim 8, wherein the frequency spectrum of the output signal is shifted by a synchronous envelope detector.

10. (Previously Presented) The method according to claim 9, wherein the synchronous envelope detector comprises:

a) a Gilbert cell having at least one differential transistor pair in an upper branch and at least one transistor in a lower branch, the upper and lower branches being interconnected , each of the upper and lower branches having input terminals;

b) a resistor divider network connected between the input terminals of the upper branch and the input terminals of the lower branch, the resistive values of the network being selected such that a selected input signal having a signal level sufficient to saturate the transistors of the upper branch is attenuated so as to not saturate the transistors of the lower branch; and

c) low pass filter means connected to the upper branch of transistors, an output signal of the detector being provided at the low pass filter.

11. (Currently Amended) The method according to claim 8, wherein the amplitude of the filtered, spectrum-shifted signal is measured by a log detector which provides a compensation signal employed to minimize the LO ~~feedthrough~~ <u>feed through</u> or undesired sideband.

12. (Previously Presented) The method according to claim 11, further comprising selectively attenuating the output signal prior to the step of measuring the output signal.

13. (Previously Presented) The method according to claim 11, wherein the second test tone has a frequency that is substantially one half of the frequency of the first test tone.

14. (Currently Amended) A quadrature modulator, comprising:

a) an in-phase modulation branch receiving as an input an analog in-phase base band signal, the in-phase modulation branch including a first dc offset adjustment circuit, a first base band gain adjustment circuit, and a first mixer;

b) a quadrature modulation branch receiving as an input an analog quadrature based band signal, the quadrature modulation branch including a second dc offset adjustment circuit, a second base band gain adjustment circuit, and a second mixer;

c) a local oscillator means for providing a local oscillator signal to the first mixer and a phase shifted version of the local oscillator signal to the second mixer,

d) a summer for summing the outputs of the first and second mixers;

e) envelope detection means for detecting an output signal of the modulator and providing a signal representative of the amplitude of the output signal of the quadrature modulator;

f) band pass filter means for filtering the amplitude signal; and

g) a log detector for measuring the strength of the filtered amplitude signal, the log detector providing a compensation signal for adjusting the phase shift of the local oscillator and the dc offsets and base band gains of the in-phase and quadrature base band signals.

15. (Previously Presented) The modulator according to claim 14, further comprising calibration means for:

a) applying a first test tone signal to the in-phase modulation branch input and a ninety degree phase-shifted version of the first test tone signal to the quadrature modulation branch input;

b) employing the compensation signal to minimize carrier leakage in the output signal by adjusting the base band dc offsets in the in-phase and quadrature branches;

c) applying a second test tone signal to the in-phase modulation branch input and a ninety degree phase-shifted version of the second test tone signal to the quadrature modulation branch input, wherein the second test tone has a frequency that is substantially one half of the frequency of the first test tone; and

d) employing the compensation signal to minimize an undesired upper sideband frequency component in the output signal by adjusting the base band gains the in-phase and quadrature modulation branches and the phase shift of the local oscillator signal.

16.-18. (Canceled)